

III. REMARKS

Claims 1-10 are all the claims pending in the application.

The drawings have been objected to because Figures 3 and 4 should be designated --Prior Art--.

Claims 1-10 are rejected under 35 U.S.C §112 second paragraph, as being indefinite.

Claims 1-3, 6-7 and 10 are rejected under 35 U. S.C. §102(b) as being anticipated by the Mentler reference (4,308,577).

Claims 4-5 and 8-9 have been indicated as being allowable if rewritten to overcome the rejections under 35 U.S.C. §112, second paragraph.

A. Formal Matters

The Applicants request the Examiner to consider the IDS filed on March 21, 2002, and provide a duly signed and initialed copy of the corresponding PTO Form-1449.

B. Objections to the Drawings

The Examiner requires that Figs. 3 and 4 be marked "Prior Art." The Applicants attach a copy of Figs. 3 and 4 duly marked "Prior Art", and request that these drawing amendments be considered and entered. The Applicants note that they have not been provided with a PTO Form-948 with the draftsperson review of the submitted drawings. The Applicants seek confirmation that, but for the informality noted with regards to Figs. 3 and 4, the submitted drawings are otherwise acceptable.

C. Section 112 Rejections

Claims 1-10 have been rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. The Applicants respectfully amend the claims to overcome these rejections.

D. Rejection of Claims 1-3, 6-7 and 10 under Section 102(b) based on Mentler

The Applicants respectfully submit that the rejection of claims based on Mentler is believed to be based on an incorrect understanding of claims 1 and 10. The proposed changes to claims 1 and 10 should clarify the scope of the invention as recited in these claims. Therefore, the reasons provided by the Examiner for the rejection of the claims by Mentler are no longer valid.

Further, it is believed that the structure disclosed by Mentler is incapable of maintaining the voltage across the gate and emitter of the switch to be continuously positive, continuously negative or alternating between positive and negative as required by these claims.

As shown in Fig. 2 of Mentler, one terminal of the load 26 is connected between the secondary side switches 18 and 20, and the voltage $V^+/2$ is applied to the other terminal of the load 26. In accordance with switching operation of the primary side switches 21, 22 and 23, the secondary side switches 18 and 20 are alternately activated so that alternate voltage can be applied to the load 26. That is, the switch 20 is deactivated when the switch 18 is activated, whereas the switch 18 is deactivated when the switch 10 is activated as shown in Fig. 3.

In such a configuration, only what can be realized is that the semiconductor switches 18 and 20 are alternately activated. However, it is impossible to keep the base terminal of each semiconductor switch positive or negative continuously.

As is well-known, the transformer does not transmit a DC component of signal. Actually, an AC signal input to the primary side coil of the transformer 16 generates magnetic flux which transmits the AC signal to the secondary side. It is necessary to provide a rectifier to obtain a DC output which is kept positive or negative continuously for an arbitrary time period. However, such a rectifier cannot be found in the secondary side of the circuit shown in Fig. 2 of Mentler.

Therefore, Mentler cannot maintain the voltage between the gate and the emitter of the switching device as one selected from a state of being continuously kept positive, being continuously kept negative, and being alternately switched between positive and negative, as claimed in the amended claims 1 and 10.

Claims 2-3 and 6-7 dependant on claim 1. Therefore the arguments presented above are equally valid in support of the patentability of these claims.

E. Objections to Claims 4-5, 8-9

Claims 4-5 and 8-9 have been objected to as being dependant on rejected base claims, but otherwise, would be allowable. The Examiner is requested to hold the status of these claims in abeyance pending resolution of the patentability of the base claims from which they depend.

III. CONCLUSION

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the

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Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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DEC -4 2002

APPENDIX TC 2800 MAIL ROOM

VERSION WITH MARKINGS TO SHOW CHANGES MADE

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DEC - 2 2002

TECHNOLOGY CENTER R3700

IN THE CLAIMS:

The claims are amended as follows:

1. (ONCE AMENDED) A semiconductor switch driving circuit comprising:
a transformer;
a primary side area provided on the primary side of the transformer for controlling current on the primary side of the transformer according to a control signal for controlling a semiconductor switch; and
a secondary side area provided on the secondary side of the transformer for directly driving a switching device, wherein said secondary side area is arranged so that the secondary side is capable of maintaining the voltage between the gate and the emitter of the switching device as one selected from a state of being continuously kept positive, [voltage between the gate and the emitter] being continuously kept negative and [voltage between the gate and the emitter] being alternately switched [in] between positive and negative.
2. (ONCE AMENDED) A semiconductor switch driving circuit according to Claim 1, wherein, in the primary side area, [a] the control signal is input to transmit power to the secondary side area for controlling plural switching devices [to] of the secondary side area and back electromotive force caused when current flowing in the transformer is cut off is absorbed.
3. (ONCE AMENDED) A semiconductor switch driving circuit according to Claim 1, wherein the secondary side area receives the power supplied from the primary side area and transmits the power for controlling plural switching devices to [the plural] a plurality of switching devices, and the plural switching devices receive the power supplied to the secondary side area of the semiconductor switch driving circuit and cause or prevent current to flow for switching.

4. (ONCE AMENDED) A semiconductor switch driving circuit according to Claim 1, wherein the source of P channel MOSFET is connected to a power terminal, the drain of the P channel MOSFET is connected to the anode of a diode, the cathode of the diode is connected to a terminal at one end of a primary winding of a transformer and back electromotive force between the terminal at one end of the primary winding of the transformer and a terminal at the other end of the primary winding of the transformer is inhibited when the P channel [MOSFE] MOSFET conducts.

6. (ONCE AMENDED) A semiconductor switch driving circuit according to Claim 2, wherein the secondary side area is provided with said plural switching devices and plural gate driving sections for respectively directly driving the switching device and the switching devices are connected in series.

10. (ONCE AMENDED) An electrotherapy apparatus [appratus] for supplying a high-voltage electric pulse to a living body for electrotherapy comprising:

a semiconductor switch driving circuit containing:

a transformer;

a primary side area provided on the primary side of the transformer for controlling current on the primary side of the transformer according to a control signal for controlling a semiconductor switch; and

a secondary side area provided on the secondary side of the transformer for directly driving a switching device, wherein said secondary side area is arranged so that the secondary side is capable of maintaining the voltage between the gate and the emitter of the switching device as one selected from a state of being continuously kept positive, [voltage between the gate and the emitter] being continuously kept negative and [voltage between the gate and the emitter] being alternately switched in positive and negative

wherein the high-voltage electric pulse is supplied via the switching device.